

A REVISION OF THE NEOTROPICAL ANTS OF THE GENUS  
*CAMPONOTUS*, SUBGENUS *MYRMOSTENUS*  
(HYMENOPTERA: FORMICIDAE)

WILLIAM P. MACKAY

Laboratory for Environmental Biology, Centennial Museum, The University of Texas,  
El Paso, TX 79968, U.S.A.

---

*Abstract.*—The subgenus *Myrmostenus* consists of a group of 6 species of South American (Peru, Bolivia and Brasil) ants which are known only from the females. The species include *C. convexiclypeus* MacKay (new species), *C. leptocephalus* Emery, *C. longipilis* Emery, *C. mirabilis* Emery, *C. postangulatus* Emery (new status) and *C. sphenoccephalus* Emery. They are easily recognized as the head is greatly elongated and somewhat flattened. Nothing is known of the biology of this interesting subgenus. A key is provided for identification of the species.

---

*Resumen.*—El subgénero *Myrmostenus* consiste de un grupo de seis especies de hormigas de Perú y Brasil conocidas solamente por las hembras. Las especies incluyen *C. convexiclypeus* MacKay, *C. longipilis* Emery, *C. leptocephalus* Emery, *C. mirabilis* Emery, *C. postangulatus* Emery y *C. sphenoccephalus* Emery. Se pueden reconocer porque la cabeza es elongada y aplanada. La biología de estas hormigas interesantes es desconocida. Se incluye una clave para la determinación de las especies.

*Key Words:* Neotropics, Peru, Brasil, *Camponotus*, *Myrmostenus*, Areas neotropicales, Perú, Brasil

---

With the exception of the small Nearctic and European faunas, the genus *Camponotus* currently consists of poorly defined groups ("subgenera") in which species identification is nearly impossible. The genus as a whole is often considered an enormous group of rather bland ants, with few good characters for separating species. While this is probably true for some subgenera (i.e., *Tanaemyrmex*, *Mymobrachys*), there are certainly many exceptions. One of the most fascinating groups in the genus is the subgenus *Myrmostenus* which, unfortunately, is known only from the females. Species in this subgenus are easily recog-

nized by their distinctive, elongate heads and, as this study reveals, have good characters for the separation of species. Nothing is known of the biology of this curious South American subgenus.

This is the first in a series of contributions towards the understanding of the New World species of this large, complex genus.

#### MATERIALS AND METHODS

Specimens were borrowed from several institutions and curators as follows:

AMNH, American Museum of Natural History, New York, Mark Smethurst.

CASC, California Academy of Sciences,

San Francisco, Darrell Ubick, Wojciech Pulawski.

LACM, Los Angeles County Museum, Los Angeles, Roy Snelling.

MCSN, Museo Civico di Storia Naturale, Valter Raineri (Emery Collection), Genoa, Italy.

MCZC, Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts, Stefan Cover.

USNM, National Museum of Natural History, Smithsonian Institution, Washington, D.C., David Smith.

Specimens were measured using an ocular micrometer in a dissecting microscope. The following abbreviations are used (all measurements in mm.):

HL, Head length, anterior of median lobe of clypeus to mid point of occiput (excluding occipital corners).

HW, Head width, maximum excluding eyes (immediately anterior to eyes).

EL, Eye length, maximum dimension.

SL, Scape length, excluding basal condyle. Clypeal length, Distance from the tops of the lobes of the posterior border of the clypeus to the edge of the anterior medial border (Fig. 8a).

Clypeal width, Distance between the tentorial pits (Fig. 6b).

Clypeal index,  $\text{Width}/\text{length} \times 100$ .

CI, Cephalic Index,  $\text{HW}/\text{HL} \times 100$ .

SI, Scape index,  $\text{SL}/\text{HL} \times 100$  (note: HL used instead of HW).

#### SUBGENUS *MYRMOSTENUS*

*Camponotus* subgenus *Myrmamblys* (in part): Forel, 1914:271, 272

*Camponotus* subgenus *Myrmomalis* (in part): Forel, 1914:271

*Camponotus* subgenus *Myrmostenus* Emery, 1920:250, 260

*Camponotus* subgenus *Pseudocolobopsis* (in part): Emery, 1923:62

Type species of the subgenus *Myrmostenus*: *Camponotus mirabilis* Emery, 1903 (designated by Emery, 1920)

Diagnosis.—The females of this subgenus have greatly elongated heads with a CI

ranging from 48–101. The pronotum is also long, together with the remainder of the mesosoma. The basal face of the propodeum is much shorter than the dorsal face. Most surfaces are smooth and shining. Erect hairs are usually sparse and decumbent pubescence is usually absent. The head has a few long, coarse hairs near the top of head and usually along the frontal carinae. The cheeks extend past the base of the mandibles, usually forming distinct lobes. The workers and males are unknown.

Description.—Female measurements (mm): HL 2.36–4.70, HW 1.44–2.52, SL 208–3.76, EL 0.56–0.98. Indices: SI 48–101, CI 40–67.

Mandible with 6 poorly defined teeth, except for apical and subapical; clypeus large and wide, often with well defined median carina; clypeal border slightly concave in all species except *C. mirabilis*; eyes large and extending past lateral edges of head; ocelli well developed; scape extending past posterior border of head (except in *C. mirabilis*); vertex concave or convex; maxillary palps with 6 segments; labial palps with 4 segments; mesosoma somewhat elongated and flattened; pronotum especially elongate; propodeum with long basal face and very short posterior face; petiole small, petiolar node relatively sharp.

Hairs sparse and coarse (except for *C. leptocephalus*, which has abundant erect hairs); decumbent pubescence essentially absent (except *C. leptocephalus*, which has sparse pubescence).

Sculpture fine, most surfaces smooth and polished, except head, which is punctate in most species.

Color medium brown.

Worker and Male: Unknown

Distribution.—Peru, Bolivia and Brasil.

Discussion.—These ants are considerably modified, possibly for living under bark or in tunnels in wood. It is difficult to determine the affinities with other subgenera in *Camponotus*, but the lobes associated with the cheeks, the enlarged clypeus and polished integument suggests that they may

be related to *Pseudocolobopsis*. They are, however, much larger than any known *Pseudocolobopsis* females.

Biology.—Unknown.

SPECIES COMPLEXES

This subgenus contains three species complexes, the *leptocephalus* complex, the *longipilis* complex and the *mirabilis* complex. The *leptocephalus* complex consists of a single species, *C. leptocephalus*. This complex can be characterized as having a relatively larger CI (61), and having most surfaces covered with short, bristly hairs. The sculpture is rougher than in other species in the subgenus, especially obvious on the mesosoma. The *longipilis* species complex consists of four species: *C. convexiclypeus*, *C. longipilis*, *C. postangulatus* and *C. sphenoccephalus*. These species can be characterized by having intermediate values of CI (51–67), lacking bristly hairs and having smooth and polished sculpture on the mesosoma and gaster, with the head sculptured to varying degrees with punctures. Finally, the *mirabilis* complex consists of a single species, *C. mirabilis*. This complex is characterized by having a very long head (CI 40–44), which is noticeably widened anteriorly, lacking short, bristly hairs and in being smooth and shining throughout, including the head.

I am not interested in defending the concept of subgenera as valid taxonomic groupings, but only as a groupings of convenience. In this instance, we can group three apparently related species complexes conveniently into a larger group, the subgenus *Myrmostenus*.

KEY TO THE FEMALES OF THE ANTS OF THE SUBGENUS *MYRMOSTENUS*

- 1. Ventral surface of head with more than 5 erect hairs (Figs. 1, 2); occipital corners of head rounded (Figs. 4, 7, 8) . . . . . 2
- Ventral surface of head without erect hairs, or rarely with 1 or 2 present; occipital corners of head angulate (Figs. 5, 6) . . . . . 5
- 2(1). Surface of clypeus with more than 20 erect hairs (Fig. 8) . . . . . *leptocephalus* Emery

- Surface of clypeus usually without any erect hairs (Fig. 7), although there may be occasional erect hairs along the borders (Fig. 5) . . . . . 3
- 3(2). Head strongly narrowed posteriorly, the minimum posterior width less than the distance between eyes (Fig. 7) . . . . . *sphenoccephalus* Emery
- Head not strongly narrowed posteriorly (Figs. 4, 8), or minimum posterior width much greater than distance between eyes, nearly as wide as width of head anterior to eyes (Fig. 6) . . . . . 4
- 4(3). Head relatively wide, CI > 60 (Fig. 4); scape long, SI > 85; eye large, maximum diameter > 0.85mm . . . . *convexiclypeus*, n.sp.
- Head narrowed, CI < 60 (Fig. 6); scape shorter, SI < 85; eye diameter smaller, maximum diameter < 0.85mm . . . *longipilis* Emery
- 5(1). Head greatly elongate (CI 40–44) with strongly formed occipital angles (Fig. 5); relatively commonly collected . . . *mirabilis* Emery
- Head not greatly elongate (CI 55), occipital angles poorly formed (Fig. 6); rarely collected . . . . . *postangulatus* Emery

CLAVE PARA LA DETERMINACION DE LAS HEMBRAS DEL SUBGENERO *MYRMOSTENUS*

- 1. Superficie ventral de la cabeza con 5 o más pelos rectos (Figs. 1, 2); esquinas occipitales de la cabeza redondas (Figs. 4, 7, 8) . . . . . 2
- Superficie ventral de la cabeza sin pelos rectos; esquinas occipitales anguladas (Figs. 5, 6) . . . . . 5
- 2(1). Superficie del clípeo con 20 o más pelos rectos (Fig. 8) . . . . . *leptocephalus* Emery
- Superficie del clípeo usualmente sin pelos rectos (Fig. 7), aunque podría tener pelos rectos al margen (Fig. 5) . . . . . 3
- 3(2). Cabeza muy angosta atrás, la anchura posterior menos que la distancia entre los ojos (Fig. 7) . . . . . *sphenoccephalus* Emery
- Cabeza no muy angosta atrás (Figs. 4, 8), o la anchura posterior casi tan ancha como la anchura inmediatamente detrás de los ojos (Fig. 6) . . . . . *longipilis* Emery
- 4(3). Cabeza no muy angosta (índice cefálico > 60, Fig. 4); escapo largo (índice del escapo > 85); diámetro máximo del ojo > 0.85mm . . . . . *convexiceps*, n.sp.
- Cabeza angosta (índice cefálico < 60, Fig. 6); escapo más corto (índice del escapo < 85); diámetro máximo del ojo < 0.85mm . . . . . *longipilis* Emery
- 5(1). Cabeza muy elongada (CI 40–44), con ángulos bien formados en las esquinas occipitales (Fig. 5); relativamente común . . . . . *mirabilis* Emery

- Cabeza no demasiada elongada (CI 55), con ángulos poco diferenciados en las esquinas occipitales (Fig. 6); no comunes . . . . .  
 . . . . . *postangulatus* Emery

## DESCRIPTIONS OF SPECIES

*Camponotus (Myrmostenus)**convexiclypeus* MacKay, new species

(Figs. 3, 4; Map 2)

Diagnosis.—This is a large species with a head much wider than in the other species in the subgenus (2.52 mm vs. 1.44–2.00 mm in all other species in the subgenus). The clypeus is strongly convex as seen from above (Fig. 3). It has the usual coarse hairs on the vertex and also on the underside of the head.

Description.—Female measurements (mm): HL 3.76, HW 2.52, SL 3.76, EL 0.98, clypeus length 1.52, clypeus width 1.22. Indices: SI 100, CI 67, clypeal index 80.

Mandible with 6 teeth and an angle at basal margin; clypeus longer than wide, strongly convex (Fig. 3); anterior clypeal border concave with two lateral lobes; scape extending about  $\frac{1}{2}$  length past posterior border of head; head flattened in profile; vertex convex; maxillary palps short, about  $\frac{1}{4}$  length of distance to foramen magnum; labial palps also short, about  $\frac{1}{3}$  length of maxillary palps; mesosoma lengthened as in other species; propodeum with poorly defined angle between two faces, posterior face appearing much shorter than basal face; petiole thin, with convex anterior face and straight posterior face (Fig. 2).

Hairs sparse, but coarse, some bent at angles and long (0.70–0.90 mm), area from vertex to upper edge of frontal carinae with about 20 coarse hairs, clypeus without hairs except for fringe at anterior border, about 20 hairs on underside of head, scapes with scattered erect hairs, up to 0.25 mm in length, dorsum of mesosoma with about 20 hairs, propodeum at point where faces meet with 6 hairs on left side, three on right side, node of petiole with three hairs on left, one on right, gaster with scattered hairs at the

edges of each tergum but also on the other surfaces; decumbent pubescence almost absent.

Sculpture coarse on head, consisting of dense punctures, similar to that of *C. sphenoccephalus*, remainder of body smooth and shining.

Color medium brown, head, including mandibles, scapes and funiculi, darker brown.

Type series.—Holotype ♀, PERU, Monson Valley, Tingo Maria, 11-xii-1954; E. I. Schlinger & E. S. Ross collectors.

Material examined.—Holotype ♀ (CASC).

Distribution.—Known only from type locality.

Etymology.—Refers to the strongly convex clypeus.

Discussion.—This species appears to be related to *C. sphenoccephalus*, as the vertex is rounded and the head is densely punctate as in *C. sphenoccephalus*. The head is wider as seen in full face view, thus making it easily separated from *C. sphenoccephalus*.

Biology.—Unknown.

*Camponotus (Myrmostenus) leptoccephalus*  
Emery

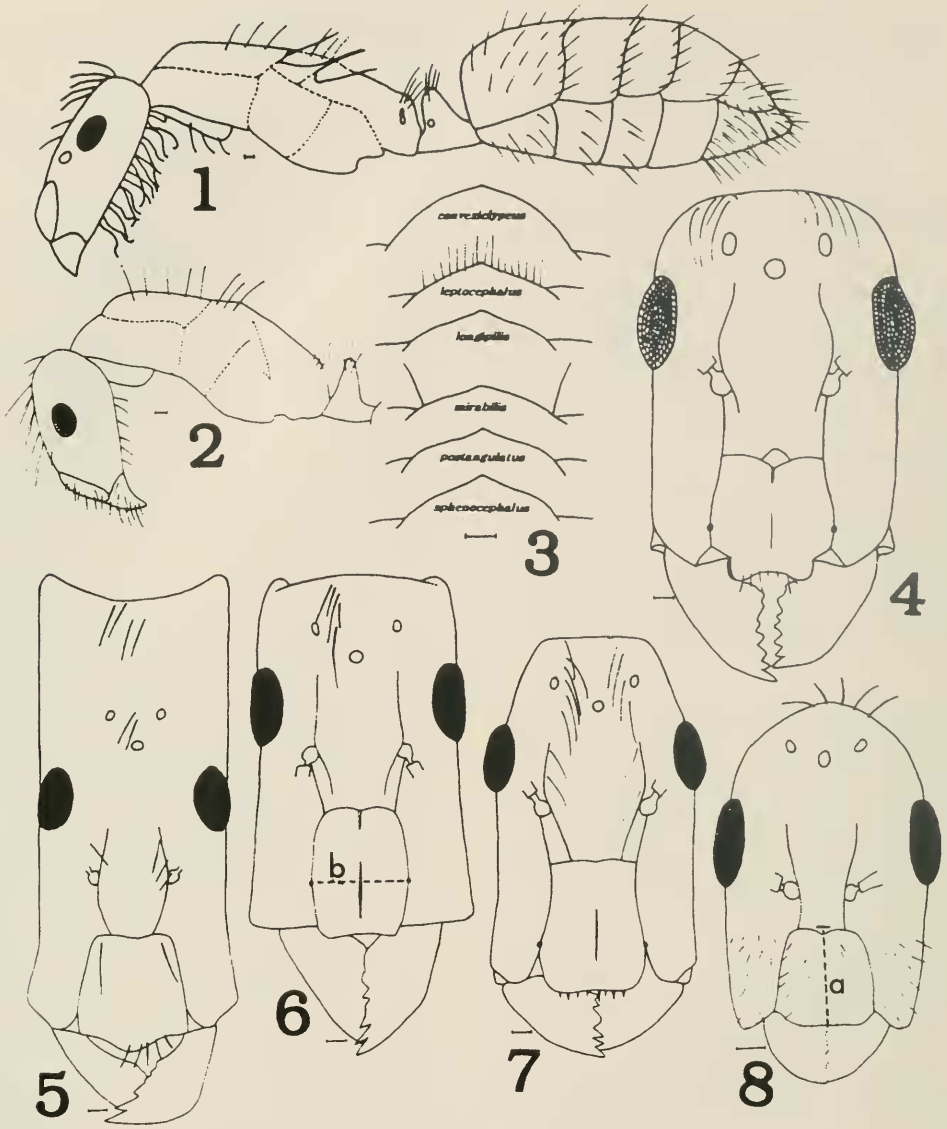
(Figs. 2, 3, 8; Map 1)

*Camponotus (Pseudocolobopsis) leptoccephalus* Emery, 1923:62, female, Fig. 3, BRASIL, Espírito Santo, MCSN [seen].

Diagnosis.—This species has the least elongate head among the species in this subgenus (CI 61). It can be easily distinguished as it is much more hairy, with the hairs being primarily short bristles. The sculpture is relatively more rough than in the other species in the complex.

Description.—Female measurements (mm): HL 2.36, HW 1.44, SL 2.38, EL 0.56, clypeal length 0.74, width 0.70. Indices: SI 101, CI 61, clypeal index 95.

Mandible with 6 teeth; clypeus slightly longer than broad, with poorly defined median carina, anterior clypeal border slightly concave; scape long, extending nearly half



Figs. 1-8. Females of *Camponotus* (*Myrmostenus*); scales are 0.2 mm. 1, *C. (M.) longipilis*, lectotype from the side. 2, *C. (M.) leptocephalus*, lectotype head, mesosoma, and petiole. 3, Clypeus of the 6 species, as seen from the top. 4, Head of *C. (M.) convexiclypeus*, holotype. 5, *C. (M.) mirabilis*, head of lectotype. 6, *C. (M.) postangulatus*, holotype head (b indicates clypeal width measurement). 7, *C. (M.) spenocephalus*, holotype head. 8, *C. (M.) leptocephalus*, lectotype head (a indicates clypeal length measurement).

Figs. 1-8. Hembras de *Camponotus* (*Myrmostenus*); las escalas son de 0.2 mm. 1, *C. (M.) longipilis* lectotipo desde el lado. 2, *C. (M.) leptocephalus* cabeza, mesosoma y pecíolo del lectotipo. 3, Clypeus de las 6 especies. 4, Cabeza de *C. (M.) convexiclypeus* holotipo. 5, *C. (M.) mirabilis* cabeza del lectotipo. 6, *C. (M.) postangulatus* cabeza del holotipo. 7, *C. (M.) spenocephalus* cabeza del holotipo. 8, *C. (M.) leptocephalus* cabeza del lectotipo.

its length past posterior border of head; head slightly flattened when seen in profile; vertex concave when seen from the front and above, convex as seen in full face view;

maxillary palps extending about  $\frac{3}{4}$  distance to foramen magnum; labial palps about  $\frac{1}{3}$  length of maxillary palps; mesosoma lengthened as in other species; propodeum



Maps 1-4. Distribution of *Camponotus* (*Myrmostenus*). 1, *C. (M.) leptocephalus* and *C. (M.) postangulatus*. 2, *C. (M.) longipilis* and *C. (M.) convexiclypeus*. 3, *C. (M.) mirabilis*. 4, *C. (M.) sphenocephalus*.

with posterior face about  $\frac{1}{2}$  of basal face; petiole with convex anterior face, nearly flat posterior face.

Hairs (erect and suberect) abundant on head and gaster, few scattered erect hairs on mesosoma and propodeum; decumbent pubescence scattered, but sparse on all body surfaces, length up to 0.06 mm in length.

Lightly but densely and evenly punctate on head, coriaceous on all surfaces of mesosoma and gaster.

Color concolorous medium brown, gaster slightly darker.

Type series.—Lectotype ♀ [here designated], Espir. Santo, X.1920-II.1921; Arp dedic; *Camp. leptoccephalus* n. (MCSN) [seen]; second female not seen.

Material examined.—Lectotype ♀.

Distribution.—Known only from type locality.

Discussion.—This species forms one of the extremes in the range of head shape, sculpture and hairiness, and thus belongs to a separate species complex. The head is not as elongate as most of the other species (CI 61) or flattened as the other species. It appears to be distantly related to *C. sphenoccephalus*, and can be easily separated as the clypeus is covered with erect hairs (none in *C. sphenoccephalus*). This species is definitely not a member of the subgenus *Pseudocolobopsis*, as the maxillary palps are long, which is not found in species in *Pseudocolobopsis*.

Biology.—Unknown.

*Camponotus (Myrmostenus) longipilis*  
Emery

(Figs. 1, 3; Map 2)

*Camponotus longipilis* Emery, 1911:224, female, PERU, Huánuco: Pachitea (MCSN) [seen].

*Camponotus (Myrmamblys) longipilis*: For-el, 1914:271.

*Camponotus (Myrmostenus) longipilis*: Emery, 1920:260.

Diagnosis.—This species has an elongate head (CI 54–56) which is basically rectan-

gularly shaped. It is identical to that of *C. postangulatus* (Fig. 6), except it lacks the occipital angles. The ventral surface of the head is covered with dense, long, erect, twisted hairs. The occipital corners are rounded and not angulate.

Description.—Female measurements (mm): HL 3.44–3.58, HW 1.88–1.94, SL 2.68–2.88, EL 0.73–0.79, clypeal length 1.23–1.32, clypeal width 0.91–1.02. Indices: SI 78–84, CI 54–56, clypeal index 74–77.

Mandible with 6 teeth; clypeus longer than broad, widened anteriorly, surface strongly convex with well defined carina; clypeal border strongly concave; scape extending past posterior border of head; vertex weakly convex; maxillary palps short and delicate, extending about half distance to foramen magnum; labial palps also slender and about  $\frac{1}{2}$  length of maxillary palps; descending face of propodeum somewhat more than  $\frac{1}{2}$  length of basal face; petiole with strongly convex anterior face, straight posterior face.

Hairs erect, sparse, long and coarse on head (including underside of head), scattered on mesosoma and scattered on gaster; decumbent pubescence very fine and sparse on mesosoma and gaster.

Head weakly, but densely punctate, mesosoma and gaster coriaceous, but strongly shining.

Color medium brown, head, mandibles and scape darker brown.

Type series.—Lectotype ♀ (here designated), Pachita, Peru, Stdg; *longipilis* Emery (MCSN) [seen]; second female mentioned by Emery (1911) not seen.

Material examined.—23 ♀, including BOLIVIA: HuachiBení, ix-1921, W. Mann (1 ♀ USNM). PERU: Pachita, Marcapata, Staudinger (lectotype ♀ MCSN, CoType # 21592, MCZC, part of type series of *C. mirabilis*), Madre de Dios, Río Tambopata Reserve, 30 air km SW Pto. Maldonado, 290m, 6/25-xi-1979, J. B. Heppner (18 ♀ USNM), Cuzco, Pilcopata, 11/14-xii-1979, 600m, J. B. Heppner (2 ♀ USNM).

Distribution.—Peru and adjacent Bolivia.

Discussion.—This species would not be confused with any other in the *longipilis* complex, except *C. postangulatus*. It differs in that the occipital corners are not angulate and the ventral surface of the head is covered with long, coarse, erect hairs. The sculpture is similar to that of *C. leptcephalus*, but it lacks the abundant hairs on the dorsum of the head, having only a few scattered, coarse, erect hairs. The clypeal carina is also much more differentiated than it is in *C. leptcephalus*.

Biology.—Unknown.

*Camponotus (Myrmostenus) mirabilis*

Emery

(Figs. 3, 5; Map 3)

*Camponotus mirabilis* Emery, 1903:80, Fig. 15, female, PERU, Vilcanota (MCSN) [seen].

*Camponotus (Myrmomalis) mirabilis*: Forel, 1914:271.

*Camponotus (Myrmostenus) mirabilis*: Emery, 1920:260.

Diagnosis.—This is the most common species in the subgenus, and is also easily differentiated from all others. The head is greatly elongated and noticeably widened anteriorly. The occipital corners are strongly angulate as seen in full face view. The clypeus is nearly flat, with little evidence of a raised region in the area of the clypeal carina. All of the surfaces, including the dorsum of the head, are strongly polished.

Description.—Female measurements (mm): HL 4.18–4.70, HW 1.82–1.88, SL 2.08–2.24, EL 0.66–0.70, clypeal length 1.19–1.28, clypeal width 0.98–1.08. Indices: SI 48–50, CI 40–44, clypeal index 82–84.

Mandible with apical and subapical teeth large, well defined, at least 4 additional teeth defined to various degrees; clypeus weakly convex with little evidence of clypeal carina as slightly raised strip; clypeal border convex and rounded; scape short and not reaching posterior border of head; head

more than twice as long as wide, noticeably widened near mandibles; vertex strongly concave, with occipital corners strongly angulate; maxillary palps very short, barely extending past buccal region; labial palps nearly as long as maxillary palps; propodeum with descending face about half length of basal face; petiole with strongly convex anterior face, nearly flat posterior face, thicker and less in height than in the other species.

Hairs erect, long, coarse and sparse on dorsum of head, pronotum, scutum and scutellum, propodeum, node of petiole and gaster; decumbent pubescence very weak and sparse on most surfaces.

Sculpture weak, shiny and polished on most surfaces.

Color medium brown, head, mandibles and scape somewhat darker, gaster with yellow blotches on both sides of anterior section of terga.

Type series.—Lectotype ♀ [here designated], Vilcanota, Peru, Stdg; *Camponotus mirabilis* n. sp. (MCSN) [seen]; Marcapata, Peru; 2 paralectotypes [here designated], #21592 (MCZC 2 ♀, third female with same numbers and labels is *C. longipilis*).

Material examined.—105 ♀, including BOLIVIA: Río Bení, Rurrenbaque, W. Mann, Nov, 1921, Mulford Exped. (2 ♀ USNM). PERU: Marcapata (3 type ♀ MCSN, MCZC), Vilcanota and Marcapata; Loromayu, 400–500 m, ix-62, L. Pena (3 ♀ LACM, 1 ♀ MCZC), Cuzco Dept., Quincemil, 750m, 14/31-viii-62, Pena (2 ♀ MCZC), Pilcopata, 8/10-xii-1979, J. B. Heppner, (10 ♀ USNM), Madre de Dios, Cuzco Amazónico, 15K NE of Puerto Maldonado, S. Cover & J. Tobin, 23-vi-91 (1 ♀ MCZC), Madre de Dios, Avispas, 400m, 1/15-x-62, Pena (5 ♀ MCZC), Avispas, 10/30-ix-62, Pena (2 ♀ MCZC); in car Pucallpa X Aguaytia, 18-vii-1968, C. & B. O'Brian (1 ♀ CASC), Río Tambopata Reserve, 30 air KSW Puerto Maldonado, 12°50'S 69°20'W, 1/26-xi-1982, E. Ross (23 ♀ CASC), same locality, 1/4-v-1984, W. Pulawski (4 ♀ CASC), same locality,



290m, 2/30-xi-1979, J. B. Heppner, (48 ♀ USNM).

Distribution.—Southern Peru, Bolivia, and adjacent western Brasil.

Discussion.—This species is at the other extreme from *C. leptcephalus* in terms of its morphology. The head is startling in view, greatly elongated and slender. The ventral surface of the head lacks erect hairs. The entire surface is shiny. The occipital angles are well differentiated from the remainder of the head. This is one of the most fascinating ants from the Neotropical region, a true jewel in the genus *Camponotus*.

Biology.—Unknown. This species is relatively common. A rather minor effort in Peru would result in the collection of workers and males and reveal what would be expected to be an interesting story about this unusual species.

*Camponotus (Myrmostenus) postangulatus*  
Emery, **new status**  
(Fig. 6; Map 1)

*Camponotus longipilis* var. *postangulata*  
Emery, 1911:225, female, PERU, Huánuco: Pachitea (MCSN) [seen].

*Camponotus (Myrmostenus) longipilis* var. *postangulatus*: Emery, 1925:161.

Diagnosis.—This species is very similar to *C. longipilis*, but can be separated easily as the occipital angles are well differentiated, and there are no erect hairs on the ventral surface of the head. The surface of the clypeus is strongly convex with a well differentiated clypeal carina.

Description.—Female measurements (mm): HL 3.62, HW 2.00, SL 2.84, EL 0.76, clypeal length 1.30, clypeal width 0.96. Indices: SI 78, CI 55, clypeal index 74.

Mandible with 6 poorly defined teeth; clypeus strongly convex with well developed carina; clypeal border weakly concave; scape extending past posterior border of head; head somewhat flattened when viewed in profile, shape identical to that of *C. longipilis*, except for presence of occip-

ital angles; vertex concave, with well developed occipital angles; maxillary and labial palps as in *C. longipilis*; mesosoma and petiole as in *C. longipilis*.

Hairs; decumbent pubescence and sculpture as in *C. longipilis*.

Type series.—Holotype ♀, Pachitea, Peru, Stdg; *longipilis* var. *postangulata* Emery (MCSN) [seen].

Material examined.—Holotype ♀.

Distribution.—Central Peru.

Discussion.—This species is closely related to *C. longipilis*, but is distinct enough to be regarded as a valid species. In addition, the type locality for both species is the same. The characters in the key and in the diagnoses of the two species should be sufficient to separate the two species.

Biology.—Unknown.

*Camponotus (Myrmostenus)*  
*sphenocephalus* Emery  
(Fig. 4; Map 4)

*Camponotus sphenocephalus* Emery, 1911: 225, female, PERU, Huánuco: Pachitea (MCSN) [seen].

*Camponotus (Myrmamblys) sphenocephalus*: Forel, 1914:272.

*Camponotus (Myrmostenus) sphenocephalus*: Emery, 1920:260.

Diagnosis.—This species has a strongly and densely punctate head, a strongly convex clypeus with well developed median carina, with numerous erect, coarse hairs on the underside of the head. The head is strongly narrowed posteriorly, with a rounded vertex. It is not closely related to any of the other known species, but is most similar to *C. longipilis* and *C. postangulatus*.

Description.—Female measurements (mm): HL 3.51–3.66, HW 1.78–1.96, SL 2.86–3.06, EL 0.78–0.81, clypeal length 1.34–1.36, clypeal width 0.93–0.95. Indices: SI 80–84, CI 51–54, clypeal index 68–70.

Mandible with 6 teeth; clypeus strongly convex with well defined carina; anterior

clypeal border concave; scape extending past posterior border of head; head widened anteriorly and strongly narrowed posteriorly; vertex convex; maxillary and labial palps, mesosoma, petiole and gaster similar to that of *C. longipilis*.

Hairs erect, coarse and scattered on head, mesosoma, petiole and gaster; decumbent pubescence short and dilute on most surfaces.

Sculpture more coarse than other species, head strongly and densely punctate, including surface of clypeus; mesosoma and gaster with much weaker sculpture than head, similar to other species except for *C. mirabilis*.

Color medium to dark brown, head, mandibles and scapes dark brown, gaster with slightly lighter splotches in same positions as in *C. mirabilis*.

Type series.—Holotype ♀, Pachitea, Peru, Stdg; sphenoccephalus Emery (MCSN) [seen].

Material examined.—7 ♀, including PERU: Pachitea (1 ♀ MCSN); Madre de Dios, Cuzco Amazónico, 15 KNE Puerto Maldonado, S. Cover & J. Tobin, vi-1989 (1 ♀ MCZC), Río Tambopata Reserve, 30 air km SW Pto. Maldonado, 290m, 6/20-xi-1979, J. B. Heppner (5 ♀ USNM).

Distribution.—Peru.

Discussion.—This species can be easily separated from all others as the head, including the clypeus, is strongly sculptured. The head is strongly narrowed posteriorly, similar to that found in *C. leptoccephalus*. It would not be confused with *C. leptoccephalus*, which has abundant erect hairs on the top and bottom of the head, *C. sphenoccephalus* has only a few, scattered hairs on these surfaces. This species is related to *C. longipilis*, but can be easily separated by the sculpture of the clypeus and the shape of the head.

Biology.—Unknown, collected in moist tropical forest at Río Tambopata Reserve.

#### ACKNOWLEDGMENTS

I thank the following curators and institutions for the loan of specimens: Mark Smethurst (AMNH), Darrell Ubick (CASC), Roy Snelling (LACM), Valter Raineri (MCSN), Stefan Cover (MCZC), David Smith (USNM). Emma MacKay, Stefan Cover and an anonymous reviewer provided a number of suggestions which improved the manuscript. A number of individuals collected the specimens, especially S. Cover, J. Heppner, W. Mann, L. Pena, W. Pulawski, E. Ross and J. Tobin. Without their selfless efforts, ant systematics would be in a worse state than it is.

This paper is dedicated to Dr. Valter Raineri, curator of the Emery collection, without whose help this revision and most of the other taxonomic work I have done with ants would not have been possible.

The research was supported by NSF grant # HRD 9253021.

#### LITERATURE CITED

- Emery, C. 1903. Intorno ad alcune specie di *Camponotus* dell'America meridionale. Rendiconto delle Sessioni della R. Accademia dell Scienze dell'Istituto di Bologna (N.S.) 7: 62–81.
- . 1911. Fragments myrmécologiques. I-V. Annales de la Société Entomologique de Belgique 55: 213–225.
- . 1920. Le genre "*Camponotus*" Mayr. Nouvel essai de sa subdivision en sous-genres. Revue Zoologique Africaine 8: 229–260.
- . 1923. Einige exotische Ameisen des Deutschen Entomologischen Institutes. Entomologische Mitteilungen 12: 60–62.
- . 1925. Hymenoptera, Fam. Formicidae, subfam. Formicinae. In Wytsman, P., ed., Genera Insectorum, Fasc. 183, 302 pp. Bruxelles.
- Forel, A. 1914. Le genre *Camponotus* Mayr et les genres voisins. Revue Suisse de Zoologie 22: 257–276.